Myrmecophilous Notes for 1917.

By H. DONISTHORPE, F.Z.S., F.E.S.

This year I have not much to report from ants' nests in nature. I spent two months in the summer at West Worthing, and it did not appear to be a good locality for ants—indeed the only species noticed in the Worthing district were *Myrmecina graminicola* Latr., *Myrmica laevinodis* Nyl., and its var. *ruginodo-laevinodis* Forel, *M. scabrinodis* Nyl., *Acanthomyops* (*Donisthorpea*) *niger* L., *A.* (*D.*) *alienus* Först., *A.* (*Chthonolasius*) *flavus* F., and *Formica fusca* L. Myrmecophiles were also very scarce, the only species found being, the beetle *Drusilla canaliculata* L., the spiders *Harpactes hombergi* Scp., and *Micaria pulicaria* Sund., and the wood-louse *Platyarthrus hoffmanseggi* Brdt., all taken with *A.* (*D.*) *niger* at West Worthing.

When at Barton Mills, in September, very few ants were seen ; *A.* (*Dendrolasius*) *fuliginosus* Latr., was scattered all over the district, its nest, however, not being found. A large colony of *A.* (*C.*) *umbratus* Nyl., occurred at the roots of a fir stump ; the only creature observed in company with the ants being a single *Micaria pulicaria* Sund. *A.* (*D.*) *alienus* Först., was common in rabbits' burrows, etc., *Othius myrmecophilus* Kies., occurring with it.

Myrmicinæ.

Myrmecina graminicola Latr.—This species was not uncommon in moss on the Downs at Findon in June; being also found in company with *Myrmica scabrinodis* in the same locality.

For the third year winged females have been bred in my colony of this ant, which I have now kept in an observation nest for over seven years [see *Brit. Ants*, p. 81; *Ent. Rec.*, **28**, 1 (1916), **29**, 30 (1917)]. On April 8th a ♀ pupa was present, and by May 18th ♂, ♀, and ☿ pupæ were in plenty. June 2nd, the first winged ♀ hatched; June 13th, 5 winged ♀ ♀ present, and the first ♂ put in an appearance; by June 23rd over 20 of both ♂ ♂ and winged ♀ ♀ present; October 13th, only 1 winged ♀ to be seen, and all ♂ ♂ had died off. The ♀ ♀ removed their wings as before and proceeded to act as ☿ ☿, but copulation was not noticed this year though it probably took place when I was not there to see. The colony had again been well supplied with animal food throughout the year. To-day (December 31st) there are present a very large number of medium sized larvæ, and the numerous ☿ ☿ and deälated ♀ ♀ are resting on them. I am unable, however, to detect any egg clusters.

As will presently be seen, I have also bred winged ♀ ♀ of *Leptothorax nylanderi* in my observation nest containing a colony of that species. It is perhaps as well again to call attention to the fact that, in spite of the numerous myrmecologists who have kept ants in observation nests for the last 100 years, winged females have only once been bred from eggs laid in captivity (when, in 1880, Lord Avebury had five queens developed in one of his *F. fusca* nests) until 1915, when such females were first produced in my *Myrmecina* colony.

Ants do not rear the winged forms until the colony has reached a certain strength, and sufficient workers have been produced; then given abundant and suitable food, they will bring up the sexes. Having

reached this stage, the ants are able to bring up the sexes (males may also be produced under certain circumstances from parthenogenetic eggs); and judging from my experiments I do not believe that the queen lays eggs which must become females, but that the workers bring this about by extra feeding of their larvæ.

Myrmica laevinodis Nyl., var. *ruginodo-laevinodis* Forel.—On July 13th a colony of this variety was found in the churchyard at Broadwater. The ☿ ☿ were hunting about on the stone path, and the nest was situated in the grass above it; the wood-louse *Platyarthrus hoffmanseggi* being present in the nest. On a subsequent visit (July 21st) a single ♂ was taken from this colony, which proves to be a gynandromorphous specimen. It is a mixed gynandromorph, nearly entirely normal ♂ in appearance. The left antenna, however, is only 12-jointed and ♀ in shape; the right being 13-jointed and normal ♂. The gaster of 5 visible segments (♂) is somewhat twisted, and the 1st segment on the right side is rounder than on the left: the genitalia being scarcely visible even when viewed from beneath. This makes the 36th gynandromorphous ant yet recorded, the 10th British specimen, the 10th *Myrmica*, and the 9th specimen described by me.

A marriage flight of this variety was observed at Richmond Park at 1.30 p.m. on August 21st. One couple was joined together on the ground, and many ♂ ♂ and a few ♀ ♀ were running about and rising into the air.

The var. *ruginodo-laevinodis* also occurs at Putney, as I have captured ☿ ☿ on a fence in a road near my house.

Leptothorax nylanderi Först.—I have had a colony of this species in my possession since 1912 [see *Brit. Ants.*, 159-60 (1915); *Ent. Rec.*, 28, 2 (1916)], and as stated above winged females were developed in it this year. March 18th, ♂ and ♀ pupæ present; May 24th, first ♂ appeared; June 1st, 3 winged ♀ ♀ and 7 ♂ ♂; June 6th, 14 winged ♀ ♀ and 28 ♂ ♂; June 9th, as a few of the ♀ ♀ were starting to shed their wings, I marked the old queen by clipping off a bit of the right intermediate tarsus; June 17th, over 30 winged ♀ ♀ and over 50 ♂ ♂ present; June 21st, the winged sexes were evidently desirous of taking their marriage flight, hurrying about all over the nest, and on the glass roof, and trying to fly as well as they could in the confined space. The ☿ ☿ were also very excited and running about in every direction; only the old queen remained quietly resting on the larvæ and pupæ. The ♂ ♂ were not seen to pay any attention to the females, and copulation was not noticed. Similar attempts at a marriage flight were observed on June 28th, July 2nd, 10th, 12th, and 14th. June 23rd winged ♀ ♀ were seen to help carry about the larvæ. June 27th, a gynandromorphous pupa was noticed (all the other sex pupæ having hatched), the head and thorax appeared to be chiefly ♀ and the gaster ♂. The ☿ ☿ took considerable interest in it, two or three generally sitting round it and tapping it with their antennæ. By July 10th it was unfortunately dead, and the ☿ ☿ had bitten holes in it. July 29th, only a few ♂ ♂ and winged ♀ ♀ still present. August 19th, all the ♂ ♂ dead, and the females had removed their wings. December 31st, very many larvæ (medium and small) present on the floor of the second dark damp chamber, and hung on the walls by their anchor-tipped hairs. There are also great numbers of

☿ ☿, and the old queen is alive and well, but very few of the new deälated ♀ ♀ have survived. No eggs can be seen.

Camponotinæ.

Acanthomyops (*Dendrolasius*) *fuliginosus* Latr.—On August 17th I visited the birch tree, near Woking, where the battle took place between *A.* (*D.*) *fuliginosus* and *A.* (*Chthonolasius*) *umbratus*, on September 3rd, 1915 [*Ent. Rec.*, 28, 2 (1916)]. The victors are now thoroughly established in the tree, and in considerable strength. ♂ ants were present and several mymecophiles occurred in and about the tree. *Myrmedonia cognata* Märk., *Amphotis marginata* F., *Scatopse transversalis* var., in some numbers, and a few individuals of *Blanjulus* (*pulchellus?*). The last three had not been found with this colony before. As I witnessed the *fuliginosus* taking possession of the tree, it is of interest to keep a record of the different myrmecophiles which occur from year to year here.

The virgin *fuliginosus* ♀ which was accepted by *umbratus* ☿ ☿ in one of my observation nests [see *Ent. Rec.*, 28, 2-3 (1916); 29, 32 (1917)] is still alive. I recorded that on January 28th, 1917, there were ten medium sized larvæ, the brood of the ♀, present in the nest. May 1st, a small packet of eggs had been laid, and the ♀ with her gaster considerably swollen was surrounded by a crowd of *umbratus* ☿ ☿. May 22nd, the nest being foul, the whole colony was transferred to a clean, new nest. There were present 231 *umbratus* ☿ ☿, the *fuliginosus* ♀, 9 larvæ, 1 packet of eggs, and 2 *Amphotis marginata* (these two beetles have lived in captivity since May 7th, 1916). May 24th, some ☿ ☿ covering the larvæ with bits of plaster to help them to spin their cocoons. During my absence at West Worthing in June and July, this nest was allowed to get too dry, large numbers of the *umbratus* ☿ ☿ died, and the eggs, larvæ, etc., disappeared; the *fuliginosus* ♀, a very few *umbratus* ☿ ☿ and the two *Amphotis* only surviving. August 18th, a number of *A.* (*Donisthorpea*) *niger* ☿ cocoons from Woking were introduced into the nest, and collected by the *umbratus* ☿ ☿; also three *umbratus* ☿ ☿ (also from Woking), one of which had an *Antennophorus uhlmanni* on its chin. One of the strange ☿ ☿ attacked the ♀ slightly during the day; at night one of her legs had been pulled off and a dead ☿ lay near her. No more attacks were noticed. August 26th, the ☿ ☿ from the *niger* cocoons began to appear (the *Antennophorus* had attached itself to one of the callow *niger* ☿ ☿), and by October 13th all had hatched and were surrounding the ♀. October 16th, having taken a number of *umbratus* ☿ ☿ at Weybridge, which had been established in a bowl with earth, I began to introduce a few at a time into the nest with the *fuliginosus* ♀, to strengthen the colony. At first the *niger* ☿ ☿ killed them, and this went on until November, when a few were received. From then up to date, 4, 5, and 6 ☿ ☿ have been added every day, the *niger* ☿ ☿ no longer attack them, and they neither attack the *niger* ☿ ☿ nor the *fuliginosus* ♀. November 20th, the *fuliginosus* ♀ began to swell with eggs again. December 31st, there are now present 60 *niger* ☿ ☿, a large number of *umbratus* ☿ ☿, the *fuliginosus* ♀ surrounded by a court of *umbratus*, and the two *Amphotis*.

Acanthomyops (*Chthonolasius*) *umbratus* Nyl.—On August 22nd a marriage flight of *A.* (*C.*) *umbratus* took place at Putney (and also of *A.*

(*C.*) *flavus*, *A.* (*D.*) *niger*, and *Myrmica laevinodis*, all four occurring in my garden). Winged and deälated ♀ ♀ were found on the pavements round about, and one deälated ♀ was running on the stonework path near a small *niger* nest in my garden, carrying a *niger* ☿ which was not quite dead in her jaws.

Formica exsecta Nyl.—In July I received a letter from Mr. J. J. F. X. King, who was staying at Rannoch, stating that the *exsecta* nest which I discovered near the Loch at Rannoch, on July 11th, 1911 (see photograph, *British Ants*, plate xvi., p. 273) is still in the same spot, not having been disturbed.

Formica sanguinea Latr.—On August 17th I visited the colony of *F. sanguinea* containing pseudogynes at Woking. The nest was in the same spot it occupied last year, and numerous ☿ cocoons were present. A number of these were taken home and introduced into my *sanguinea* observation nest, and when they hatched later some of them proved to be pseudogynes.

Formica fusca L.—A single winged ♀ was captured flying in my garden at West Worthing on July 15th.

COLEOPTERA.

Claviger testaceus Preys.—Dr. Chapman kindly gave me a specimen of *Claviger* which he had taken in a nest of *Myrmica scabrinodis* at Betchworth, on September 22nd, 1917.

Lepidopterology.—Two new European Lycaenids.

By T. A. CHAPMAN, M.D., F.E.S.

(*Continued from page 8.*)

The second part of the fourteenth volume of the *Études de Lépidoptèrologie comparée* is concerned with the genus *Actinote*, the South American representative of the *Acraeidae*. It begins with a criticism of Dr. Jordan's treatise on the genus in Seitz's *Macrolepidoptera of the World*. The criticism is not, indeed, of Dr. Jordan, but of the Editor and Publishers, who promised "the classification of each butterfly at first sight, no longer any museum or private collection with unclassified butterflies." M. Oberthür finds, however, that the species of *Actinote* figured are chiefly long and well known species, but that the new forms and species described by Dr. Jordan are rarely figured. He trusted to the ease and certainty of the determinations, which he expected to find by consulting the work, and he complains that his hopes have been deceived. In this Fascicule he completes by means of the specimens in his collection at Rennes, the work published by Seitz, chiefly founded on the examples in the British Museum and at Tring. Fifty-one species are discussed, and there are 57 figures. Under the head of *Actinote anteas*, Doubl., he discusses at length the difficulties due to want of figures of the forms described by Dr. Jordan, and commends the Doctor's dictum, "We have not reached satisfactory results." M. Oberthür says we are left like Theseus, in a labyrinth, but with no Ariadne to extricate us by a guiding thread, in this case the necessary figures. He does not hesitate a moment, he regards as nil and non-existent all names not illustrated by a figure, and without hoping to clear up all difficulties, will do his best, with M. Culot's aid,